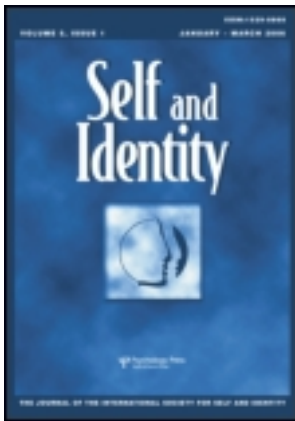


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### The Relational Self and Pre-existing Depression: Implicit Activation of Significant-other Representations Exacerbates Dysphoria and Evokes Rejection in the Working Self-concept

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# The Relational Self and Pre-existing Depression: Implicit Activation of Significant-other Representations Exacerbates Dysphoria and Evokes Rejection in the Working Self-concept

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This research tested the hypothesis that increased dysphoric mood and rejection in the working self-concept would emerge among individuals with pre-existing symptoms of depression—based on implicit activation (vs. not) of a mental representation of a loved-but-rejecting family member (rather than a disliked/rejecting one). Dysphoric college students randomly assigned to anticipate an interaction with a new person resembling a loved significant other showed increases in depressed mood and offered freely listed self-descriptions that were more characterized (according to judges) by a sense of “rejection” (relative to a control condition). No such effects occurred among non-dysphoric individuals. Dysphoric individuals may be especially vulnerable emotionally to expected encounters with new people who resemble loved family members by whom they have felt rejected.

**Keywords:** Depression; Interpersonal schemas; Mental representations; Significant others.

That individuals are shaped by the interpersonal context of their lives has long been a central focus of social psychology. In recent decades, increasing empirical support has accumulated for the presumption, in particular, that the way individuals view themselves is defined in part by their important relationships, with differing aspects of the self called to the fore with each significant person in their lives (e.g., Andersen & Chen, 2002; Baldwin & Dandeneau, 2005). Mental representations of significant others, when triggered by situational or interpersonal cues, produce measurable effects on both social and self-perception. That is, their activation colors the individual’s immediate experience, even if the significant other is not present, and can evoke relational aspects of the self commonly experienced with the significant other (Chen & Andersen, 1999; see also Baldwin, Carrell, & Lopez, 1990; Hinkley & Andersen, 1996; Reznik & Andersen, 2007).

This phenomenon may have special relevance to depression, given its association with problematic interpersonal experiences (e.g., Coyne, 1976; Davila, Hammen, Burge, Paley, & Daley, 1995; Haefffel, Voelz, & Joiner, 2007; Rao, Hammen, & Daley, 1999). Maladaptive mental representations of significant persons—developed

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earlier in life—seem to predict the onset of depression, in part by disrupting present interpersonal relationships (Davila et al., 1995; Hammen, 2000). From the standpoint of the present research, depression may itself be exacerbated by the triggering of mental representations of and relevant experiences with significant others that are stored in memory. Simply put, significant-other representations may influence how dysphoric individuals feel and view themselves in such contexts. The present research tested this proposition by examining the consequences of triggering a mental representation of a loved significant other who nonetheless was also somewhat rejecting. Given the continued emotional investment in relationships with loved ones, activating such a representation may evoke the pains experienced in the relationship and lead to dysregulated affect (i.e., to an exacerbation of dysphoric mood), and to problematic shifts in the working self-concept.

### *The Influence of Significant-other Representations on New Interpersonal Situations*

Experimental research in social cognition suggests that mental representations of significant others, when activated, result in shifts in how the self is experienced at that moment (Andersen & Chen, 2002; Baldwin & Dandeneau, 2005; see also Baldwin et al., 1990; Baldwin & Holmes, 1987; Berenson & Andersen, 2006; Hinkley & Andersen, 1996). This can occur based on encountering cues relevant to the representation, whether that involves being explicitly asked to visualize the significant other (e.g., Baldwin & Holmes, 1987) or exposure to less explicit cues, such as the face of this person (subliminally; Baldwin et al., 1990), a tone paired with the representation (Baldwin & Meunier, 1999), or a small set of features relevant to this other (presented amid other information about a new person; Andersen & Cole, 1990; Andersen, Reznik, & Manzella, 1996). The data suggest that such cues activate the significant-other representation, and that this activation spreads to the self as experienced in this relationship (Andersen & Chen, 2002).

When individuals encounter information about a new person that is minimally descriptive of their significant other, intermixed with irrelevant filler information, they will go beyond the information given about the new person by making non-synonymous inferences about him or her based on the significant other (see Chen & Andersen, 1999), while also showing changes in the working self-concept reflecting the self when with the significant other (Berenson & Andersen, 2006; Hinkley & Andersen, 1996; Reznik & Andersen, 2007). In terms of the former, perceptions of a new person become biased by the significant other's features, with individuals making inferences about this new person (incorrectly remembering that they saw features of the new person that they did not actually see) beyond those explicitly presented (e.g., Andersen & Baum, 1994; Andersen & Cole, 1990; Andersen et al., 1996). The effect, termed the social-cognitive process of transference, is observed even when triggering cues are presented subliminally and the measure is biased inferences (Glassman & Andersen, 1999). It occurs regardless of whether the significant other is loved or detested (Andersen et al., 1996; Andersen & Baum 1994; Baum & Andersen, 1999), and it is one of two basic indices of significant-other activation and use.

Such representation-consistent memory effects also occur more for resemblance to a significant-other representation than for resemblance to a social category (stereotype or trait concept) that the individual tends to use (Andersen & Cole, 1990; Chen, Andersen, & Hinkley, 1999). Such evidence argues against the interpretation that the effect is reducible to the activation of a generic social

category or type. In addition, the effect is not reducible to mere semantic coherence among—and hence better semantic cueing by—significant-other features because significant-other representations are actually more distinctive in their features than are the social categories in memory (Andersen & Cole, 1990). Finally, the effect cannot be explained merely by the objective content of the target features presented in the significant-other condition, because in most studies a one-to-one yoking is employed, such that participants in a control condition are exposed to the same cues as those in the significant-other-resemblance condition.

The other basic index of the activation of the significant-other representation in social perception arises based on the process of schema-triggered affect, in which the activation of a multi-feature representation or category leads the overall evaluation linked to this representation to be applied to a new person (see Fiske & Pavelchak, 1986). When a new person resembles a loved (vs. disliked) significant other, based both on positive and negative qualities that the new person is purported to have, individuals end up liking the new person more, and no such effect arises in a control condition in which participants are presented with exactly the same cues (Andersen & Baum, 1994; Andersen et al., 1996; Berk & Andersen, 2000). The effect is not due simply to the evaluative tone of the specific features, both because an equal number of positive and negative attributes are presented (regardless of overall love or dislike for the other) and because the same cues are presented in the yoked-control condition. In fact, participants in the significant-other-resemblance condition show even more positive facial affect in learning about the new person during exposure to the negative features of their own loved significant other rather than to positive features of this other (presented about a new person; Andersen et al., 1996). Hence, the schema-triggered evaluation of a new person based on whether the significant other is liked or disliked is not based simply on the valence of the actual features presented.

A number of other effects also arise depending on the precise nature of the relationship with that significant other. If the significant other is loved and the relationship is non-problematic, individuals come to expect acceptance rather than rejection from the new person who resembles this other, and will be more motivated to be close (i.e., willing to be disclosing) with him or her. They also come to view themselves in the experiment as they typically do when they are with the significant other (Hinkley & Andersen, 1996). When the relationship is problematic, on the other hand (e.g., a significant other who was abusive, even if loved), activating the representation can evoke the desire to avoid personal disclosures (Berenson & Andersen, 2006).

### *The Interpersonal Nature of Depression*

A growing body of evidence, as noted, suggests that depression is associated with interpersonal impairment (Hammen, 2000; Hammen & Brennan, 2001, 2002), and that interpersonal stressors, such as relationship disruptions, may, in turn, provoke depression (e.g., Hammen, 2000; Joiner, 2000). For instance, loss of important relationships, as in a romantic break-up, has been found to predict the first onset of depression in late adolescence (Monroe, Rohde, Seeley, & Lewinsohn, 1999). In addition, depressed individuals who are identified as particularly reactive to negative relationship events have been found to show increases in depressive symptoms based on negative life events that are interpersonal in nature (Hammen, Marks, Mayol, & DeMayo, 1985). In particular, rejection by significant others has been implicated in

the development and maintenance of depressive symptoms (Coyne, 1976). For example, interpersonal rejection prospectively predicts symptoms of depression among adolescents (Nolan, Flynn, & Garber, 2003). Similarly, female college students high (vs. low) in rejection sensitivity show more symptoms of depression after six months based on rejection by a romantic partner but not a non-interpersonal stressor (Ayduk, Downey, & Kim, 2001).

Depressed individuals may also respond to others in ways that place them at increased risk of further rejection and depression. One study found that depressed individuals responded to negative verbal feedback from their spouses by seeking more negative feedback, compared to non-depressed individuals (Casbon, Burns, Bradbury, & Joiner, 2005). A prospective study of 496 adolescent girls found that low parental support predicted a diagnosis of major depression. Furthermore, a diagnosis of major depression predicted decreases in peer social support (but not decreases in parental support) over two years (Stice, Ragan, & Randall, 2004), suggesting that depression—which may be caused, in part, by early interpersonal rejection—may set the stage for later rejection. We would argue that among depressed individuals, prior experiences of rejection and loss with loved ones may increase vulnerability to perceiving and experiencing further rejection and loss in later interpersonal encounters, e.g., when a loved one happens to be cued in some way.

### *The Present Study*

This analog study sought to examine the notion that individuals reporting moderate symptoms of depression over a period of more than one month are especially vulnerable to interpersonal encounters that implicitly trigger mental representations of a loved significant other who has at times been rejecting. Exposure to cues derived from one's own significant other in a transference paradigm should prompt activation of the representation of this significant other and its use interpersonally, i.e., the transference effect, for both depressed and non-depressed individuals. Exposure to such cues (vs. to yoked-control cues), however, should also indirectly and implicitly activate the rejecting responses of this significant other, for both depressed and non-depressed persons. Hence, when the significant other is loved, depressed participants should react with emotion dysregulation and negative shifts in the working self-concept, while no such effects should occur when the significant other is disliked, given the relative lack of felt connection and emotional investment that emerge with disliked significant others. Nor should the effect occur among non-depressed individuals, who may self-regulate in response (see, e.g., Andersen et al., 1996; Hinkley & Andersen, 1996) or may simply discount it in the face of the positive in the relationship.

In the research, college students, classified as *dysphoric* (depressed) or *non-dysphoric* (non-depressed) were randomly assigned to one of four conditions. In each, they learned about a new person who minimally resembled a loved or disliked family member from their own life who was sometimes rejecting, or about a new person who resembled another participant's loved or disliked family member who was sometimes rejecting (in a yoked-control condition). Terms such as "rejecting" or "rejection" were not included in the cues presented about the new person. In the former two conditions, some of the features presented about the new person were derived from the participant's own significant-other descriptions (obtained in a previous session). In the yoked-control condition, each participant was yoked

one-to-one with a participant in the significant-other-resemblance condition, such that both were presented with the same features.

We hypothesized that, based on the target cues derived from the participant's significant other, the representation designating this significant other would be activated among both depression (i.e., dysphoric and non-dysphoric) groups, as reflected in more positive evaluation of the new person resembling the loved rather than the disliked significant other, and no such effect in the control condition. That is, the established transference effect (significant other activation and application) should occur in both groups. More importantly, in spite of this positive response deriving from the loved significant other, we anticipated that negative effects would emerge among depressed individuals in this condition (relative to the yoked control), both for mood and the self-concept. Resemblance to their own loved significant other (vs. the yoked-control condition) should evoke, among depressed persons, more dysphoric mood and also a more negative working self-concept—i.e., a tendency to see the self as more rejected, presumably based on the indirect, implicit rejection in the resemblance condition. Non-depressed individuals, by contrast, should show no such effects, given that college students not pre-selected for symptoms engage in self-regulation in response to threat in the context of transference (see Hinkley & Andersen, 1996).

## Method

### *Participants*

One hundred forty-two individuals took part in a two-session study in fulfillment of a requirement for an introductory psychology course at a private, northeastern university. Participants were pre-selected based on their scores on the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979), completed as part of a pre-screening battery administered in introductory psychology at the beginning of the semester. The BDI is a 21-item self-report inventory assessing various symptoms of depression, with each item consisting of four self-declarative statements to which participants respond in a forced-choice format (using a 0–3 scale). Participants with a summed score of 16 or above (i.e., in the moderate range or above; Beck et al., 1979) were termed depressed, or dysphoric, while those scoring 0–9 were termed non-depressed or non-dysphoric,<sup>1</sup> and these participants were included in the study in these groups only if their BDI scores remained stable over two out of three testing sessions spanning a minimum of five weeks (the pre-screening battery, the first study session, and the second study session—the latter being the experiment). Three hundred fifty-seven individuals (101 male, 256 female) participated in the first session: 195 classified non-dysphoric ( $M_{BDI} = 3.7$ ,  $SD_{BDI} = 2.6$ ), 146 classified dysphoric ( $M_{BDI} = 22.2$ ,  $SD_{BDI} = 6.5$ ), including 16 with missing pre-screening BDI scores, but otherwise fulfilling criteria based on BDI in Sessions 1 and 2. Of these, 295 qualified for the second session: 196 non-dysphoric ( $M_{BDI} = 3.7$ ,  $SD_{BDI} = 2.9$ ), 88 dysphoric ( $M_{BDI} = 24$ ,  $SD_{BDI} = 7.2$ ), 2 with BDI scores of 15, and 11 with missing BDI scores (7 dysphoric, 4 non-dysphoric) but whose pre-screening and experiment-assessed BDI scores met criterion. Of these, 182 participated in the experiment. Those who did not participate either could not be reached, chose not to participate, or were not recruited. Participants were included in the final analyses if they had retained their classification based on a BDI score of 16



or above, on two out of three administrations, and for dysphoric participants who did not retain their classification at Session 2, if their BDI score was no lower than 14. They were excluded if they guessed the connection between the study sessions or later indicated they did not actually believe that they would be interacting with a new person ( $n = 7$ ). Individuals were also excluded if the participant to whom the person was yoked did not also take part in the study or was eliminated for any of the aforementioned reasons ( $n = 5$ ).

Ultimately, the final sample of 142 participants (38 males, 104 females) ranged in age from 17 to 24 ( $M = 18.8$ ,  $SD = 1.0$ ), and the racial-ethnic composition of the sample was: 59% White ( $N = 84$ ), 18% Asian ( $N = 26$ ), 12% Hispanic ( $N = 17$ ), 8% Black ( $N = 11$ ), and 2% other ( $N = 3$ ), with one individual not identifying race/ethnicity. Sixty were classified as dysphoric ( $M_{BDI} = 22.9$ ,  $SD_{BDI} = 7.3$ ), equally split across conditions,  $n = 15$ /cell, and 82 participants were non-dysphoric ( $M_{BDI} = 2.8$ ,  $SD_{BDI} = 2.6$ ), also equally split across conditions,  $n = 20$  or 21/cell).

### *Sequencing of Procedures, Design, and Measures*

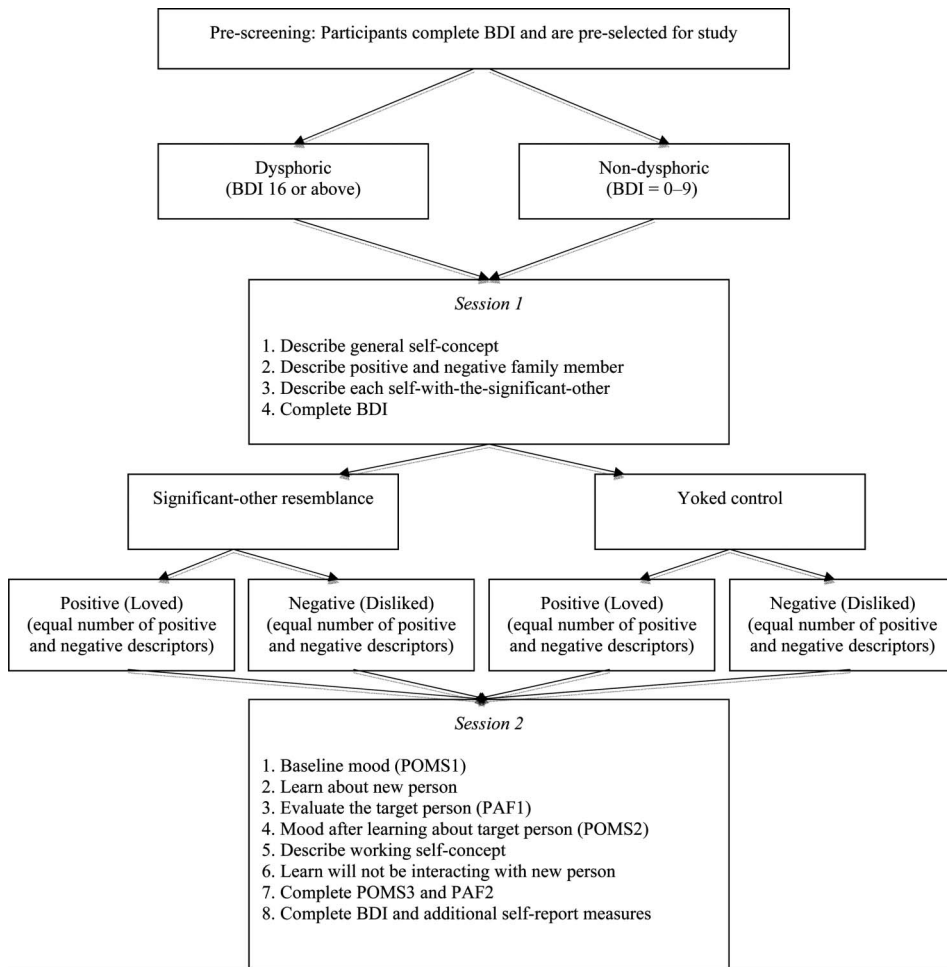
Figure 1 depicts the study's procedures and measures across pre-screening, the first session, and then second session (the experiment), including the order in which measures were completed.

#### *Session 1: Materials and Procedure*

Participants completed the first study session in groups of two to six people, at least three weeks after pre-screening. First, we asked participants to describe themselves by completing 20 statements beginning with the prompt, "Generally, I . . ." We then described the study as about how people perceive others and asked participants to name two family members who were important to them and from whom they had not felt the level of acceptance that they would have preferred (if not continuously, then at some point in their lives). Perceived rejection by the significant other was operationalized as lack of acceptance so that the types of descriptions participants provided would not be so obviously "rejecting." Family members were examined (rather than a wider range of significant others) to eliminate potential biases between dysphoric and non-dysphoric individuals in their selection of significant others.

Participants were first asked to name a much liked or loved family member—someone whom they knew very well—who was also less accepting than they would have preferred. They were then asked to list 10 positive and 10 negative features (as sentence predicates) to describe the family member, each unique to this person and containing no more than six words. Participants were specifically asked to list non-synonymous features that distinguished this family member from other people, including themselves. Participants then rank ordered, respectively, the positive and negative phrases they listed. These rankings were later used to select moderately descriptive sentence cues to characterize the target person in Session 2. Participants were then asked to name a disliked family member who was also less accepting than would have been preferred—again someone they knew very well—and listed and rank-ordered descriptions of this family member (as above).

The significant-other descriptions (of participants in the experiment) included 41% parents (20% mothers, 21% fathers), 21% aunts (7%) and uncles (14%), 20% siblings (6% sisters, 14% brothers), and 17% other (cousins, grandparents, etc.). There were no significant differences between dysphoric and non-dysphoric



**FIGURE 1** Study procedure and conditions. *Note:* BDI=Beck Depression Inventory; POMS=Profile of Mood States-Revised; PAF=Partner Assessment Form.

participants in the types of family members chosen as positive versus negative significant others and used in the experiment.

Additionally, participants were presented with a list of 89 moderately positive adjectives (e.g., sensitive, persistent, skillful), as in, for example, Hinkley and Andersen (1996; selected from N. H. Anderson, 1968, to have ratings in the moderate range of favorability,  $M = 384$  on a 100–700 scale) and were asked to classify 15 as *descriptive*, 15 as *counter-descriptive* (i.e., opposite of), and 15 as *irrelevant* to each family member, one at a time. Those chosen as irrelevant were later used in the experiment as irrelevant filler cues about the new person.

Participants also rated how positively/negatively they viewed each significant other as being on the same  $-5$  (*completely negatively*) to  $5$  (*completely positively*) scale and how accepted they felt by the significant other on a scale from  $-5$  (*completely not accepted*) to  $5$  (*completely accepted*). Positivity ratings tended to be 2 or above for the positive significant other ( $M = 3.69$ ,  $SD = 1.62$ ), and  $-2$  or below for the negative other ( $M = -2.03$ ,  $SD = 2.30$ ), and no interaction with dysphoria status



emerged, indicating that these ratings did not differ by whether they were generated by dysphoric or by non-dysphoric individuals ( $F < 1$ ). Similarly, positive significant others were rated as more accepting ( $M = 1.77$ ,  $SD = 2.29$ ) than were the negative others ( $M = -2.06$ ,  $SD = 2.21$ ), and again no interaction emerged between evaluation of the significant other and the dysphoria status ( $F < 1$ ).

Finally, participants completed the BDI for the second time. Those who maintained scores of either 0 to 9 or 16 and above were eligible to participate in Session 2 of the study.<sup>2</sup>

### *Session 2: Materials and Procedure*

The experiment, held two or more weeks after Session 1, was conducted in a different room by a different experimenter. Participants were met by a female experimenter and were led to believe that another participant had already arrived and was in the room next door.

*Mood.* Participants' mood was measured at the start of the session (POMS1) using the Profile of Mood States–Revised (POMS-R; McNair, Lorr, & Doppelman, 1992). The POMS-R contains 65 self-descriptive adjectives rated on a 5-point Likert-type scale, ranging from 0 (*not at all*) to 4 (*extremely*)—to describe their mood state “right now.” Items on this scale were summed to yield a total score. This measure includes a 15-item scale assessing depressed mood, which is termed “depression-dejection.”

*Learning about the target person.* Participants were then told that they would be interacting with someone in a “getting acquainted” conversation—a new person (who was being interviewed next door). After reading ten features that described the person—allegedly generated from the interview—participants were asked to imagine themselves interacting with him or her. Based on random assignment, half read some features derived from their own descriptions of their own (loved or disliked) family member. (These were paraphrased so that participants would not recognize them from Session 1.) The other half read features derived from a yoked participant's descriptions of a loved or disliked family member. Ten descriptions were provided about the new (i.e., target) person (as cues), of which six had been previously generated by the participant or by a yoked participant (ranks 4–6 from the positive and negative descriptors, respectively), in each case an equal number of positive and negative descriptions. The remaining four descriptions were moderately positive adjectives selected in Session 1 as irrelevant to this family member.<sup>3</sup> Participants in the significant-other-resemblance condition were yoked one-to-one with control participants so that controls were exposed to exactly the same features as cues about the target person as those in the resemblance condition. Dysphoric participants were yoked with dysphoric participants, while non-dysphoric participants were yoked with non-dysphoric participants.

*Working self-concept.* To assess participants' working self-concept, we asked individuals to describe themselves as they saw themselves at that very moment, by completing 15 sentences beginning with the prompt, “I . . . .” To objectively assess the content of participants' working-self-concept descriptions (in Sessions 1 and 2), we asked two independent judges who were blind to participants' depression status and experimental condition, to rate impressionistically, on a 1–7 scale, the extent to which these descriptors, as a whole, conveyed that the person seemed to see him or herself as “rejected.” They did so with reasonable inter-judge reliability (Session 1,

$r = .69$ ; Session 2,  $r = .62$ ), and the judges' average served to index perceived rejection in the self-concept.

*Depressed/dejected mood and evaluation of the target person.* Participants then completed the POMS-R a second time (POMS2). This was followed by a Partner Assessment Form, a 24-item measure used in previous studies (see Andersen & Chen, 2002) assessing responses to the new person on a Likert scale ranging from 1 to 7. One subscale, in particular, is used as a basic index of significant-other activation (e.g., Andersen & Baum, 1994; Andersen et al., 1996; Berk & Andersen, 2000), and examines participants' positive/negative evaluation of the new person, to determine whether or not the overall love or dislike for the significant other is applied to the new person. A factor analysis with an oblique rotation yielded five items from this scale that loaded onto this factor above .40 and showed good inter-item reliability ( $\alpha = .88$ ). These items (e.g., "In general, how positive is your impression of this person?" and "How well do you think you will like this person?") were averaged as an index of how positively participants evaluated the new person.

Next, we set the stage for a follow-up assessment after the interaction was no longer anticipated, in case this was a limiting condition for the predicted effects, by informing participants that they had been assigned to a condition in which they would not actually meet with the new person. They then completed the POMS (POMS3) and the PAF (PAF2) once again.

The BDI was administered a final time, and, in addition, participants completed the State Self-esteem Questionnaire (Heatherton & Polivy, 1991), the Rejection Sensitivity Scale (Downey & Feldman, 1996), and the Sociotropy–Autonomy Scale (Beck, Epstein, Harrison, & Emery, 1983).<sup>4</sup> A funnel debriefing questionnaire was then completed ascertaining whether participants guessed that the experiment was related to a prior session.

### *Judges' Ratings and Baseline Analyses*

Beyond rating overall perceived rejection in the participants' self-concept descriptions in the experiment and at Session 1 on a 7-point scale (noted above), judges also rated how positive (vs. negative) the descriptions were, one at a time (on a scale of  $-5$  to  $5$ ), and did so highly reliably (Session 1,  $r = .95$ ; Session 2,  $r = .94$ ). Session 1 ratings indicated that dysphoric individuals' self-descriptions conveyed more perceived rejection ( $M = 4.82$ ,  $SD = 0.98$ ), overall, than did those offered by non-dysphoric individuals ( $M = 3.01$ ,  $SD = 1.19$ ),  $t(132.6) = 9.77$ ,  $p < .01$ , unsurprising given the covariation of depression and these characteristics. Likewise, judges rated each self-statement listed in Session 1 as less positive, on average, when the participant was dysphoric/depressed ( $M = 0.07$ ,  $SD = 0.70$ ) versus not ( $M = 1.03$ ,  $SD = 0.74$ ),  $t(136) = 7.62$ ,  $p < .01$ .

## **Results**

Table 1 shows means, standard deviations, and correlations among our primary variables. All predicted interactions were made on a between-participants basis; we did, however, design the experiment to be sensitive to variability that may emerge depending on whether participants were anticipating an interaction with the target, or were no longer doing so. Hence, we included Administration Time as a repeated measure.

**TABLE 1** Means, Standard Deviations, and Correlations Among the Primary Study Variables at Each Time Point

	1	2	3	4	5	6	7	<i>M</i>	<i>SD</i>
1. PAF1	–							4.37	0.95
2. PAF2	.90**	–						4.29	0.96
3. POMS1	–.04	–.05	–					9.24	12.11
4. POMS2	–.04	–.04	.96**	–				8.89	12.52
5. POMS3	–.02	.01	.92**	.92**	–			7.60	11.79
6. Reject1	–.21*	–.17	.43**	.41**	.41**	–		3.76	1.42
7. Reject2	–.14	–.15	.50**	.55**	.44**	.65**	–	4.07	1.41

*Notes:* PAF = Partner Assessment Form Evaluation; POMS = Dysphoric Mood on the Profile of Mood States; Reject = Independent Judges' Average Ratings of Rejection in the Working Self-Concept. \* $p < .05$ ; \*\* $p < .01$ .

### *Evaluating the New Person as the Significant Other is Evaluated*

To determine whether or not the manipulation activated the significant-other representation and its overall evaluation of the significant other, as in prior research (e.g., Andersen et al., 1996), we examined participants' average evaluation rating of the new person while anticipating the interaction (PAF1) and when no longer anticipating it (PAF2) in a  $2 \times 2 \times 2 \times 2$  (Depression Status  $\times$  Significant-Other Resemblance  $\times$  Loved/Disliked Significant Other  $\times$  Administration Time) analysis of variance (ANOVA) with a repeated measure for time.<sup>5</sup> We predicted that participants would evaluate the new person more positively when he or she resembled their own loved versus disliked significant other, but not a yoked-control participant's loved versus disliked significant other, regardless of initial depression status. As predicted, the analysis yielded a statistically significant two-way interaction between significant-other resemblance and significant-other valence,  $F(1, 133) = 4.56$ ,  $p < .05$ , cutting across depression status. Planned contrasts indicated that when the new person resembled participants' own loved significant other, participants evaluated this new person more positively ( $M = 4.60$ ; 95%  $CI = 4.29$ – $4.90$ ) relative to when he or she resembled their own disliked significant other ( $M = 3.93$ ; 95%  $CI = 3.63$ – $4.24$ ),  $t(133) = 2.18$ ,  $p < .05$ ,  $d = 0.52$ . No such difference arose when the new person resembled a yoked participant's significant other (positive,  $M = 4.33$ ; 95%  $CI = 4.02$ – $4.63$ ; negative,  $M = 4.33$ ; 95%  $CI = 4.02$ – $4.64$ ),  $t < 1$ ,  $d = 0.00$ .

### *Cueing the Significant Other and Precipitating Dysphoric Mood*

To test the hypothesis that dysphoric (and not non-dysphoric) participants would show exacerbated depressed mood when the new person resembled their rejecting but loved significant other, relative to a control condition, we examined changes in self-reported mood on the POMS depression-dejection scale (POMS2, POMS3) in a similar analysis conducted as an analysis of covariance (ANCOVA), adjusting for depressed mood just before the experiment (POMS1).

We predicted that dysphoric participants would show more depressed mood after having learned about the new person resembling their own loved significant other, rather than a yoked participant's, and no such effect when the new person resembled

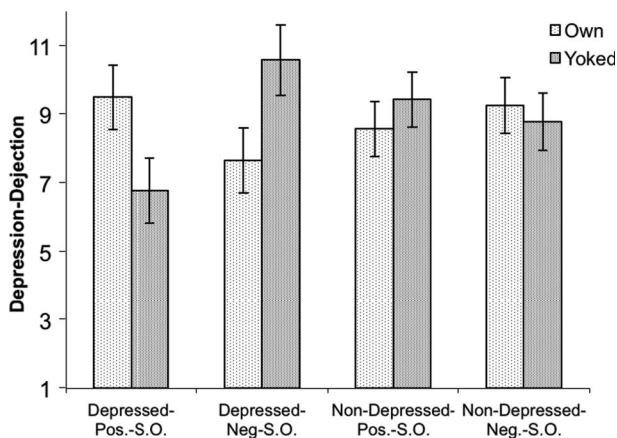
their disliked significant other (relative to the relevant yoked control). As predicted, a significant interaction emerged, although it did so as a four-way interaction involving Time of Administration,  $F(1, 133) = 9.71, p < .01$ , rather than as a  $2 \times 2$  averaging across Administration Time. Separate follow-up  $2 \times 2 \times 2$  factorial ANCOVAs were conducted to examine mood at each administration time. While anticipating the interaction (POMS2), the three-way interaction was statistically significant, as predicted,  $F(1, 133) = 8.25, p < .01$ . No such effect emerged when no longer anticipating the interaction (POMS3),  $F < 1$ , suggesting that the mood effect is limited to the anticipatory context.

As shown in Figure 2, while anticipating the interaction with the new person who resembled their own loved (and rejecting) significant other, rather than a yoked participant's, dysphoric individuals responded with significantly *more* depressed-dejected mood (Adjusted  $M = 9.49$ ; 95%  $CI = 7.65-11.33$ ; Adjusted  $M = 6.77$ ; 95%  $CI = 4.89-8.64$ ),  $t(133) = 2.10, p < .05, d = 0.76$ . By contrast, when the new person resembled their disliked (and rejecting) significant other, dysphoric participants actually responded with significantly *less* depressive affect in the experiment (Adjusted  $M = 7.65$ ; 95%  $CI = 5.77-9.53$ ) than they did in the relevant yoked-control condition (Adjusted  $M = 10.57$ ; 95%  $CI = 8.56-12.58$ ),  $t(133) = 2.25, p < .05, d = 0.82$ .

Moreover, non-dysphoric participants showed no differential mood based on the target's resemblance to their own loved (or disliked) significant other, relative to the yoked controls.

#### *Cueing the Significant Other and Increased Rejection in the Working Self-concept*

Next we tested our hypothesis about perceived rejection in the working self-concept, which ran parallel to our prediction about mood. Specifically, we averaged judges' ratings of the extent to which the self-concept features listed by participants conveyed that they saw themselves as "rejected" and examined this in a  $2 \times 2 \times 2$  ANCOVA (Depression Status  $\times$  Significant-Other Resemblance  $\times$  Loved or Dis-



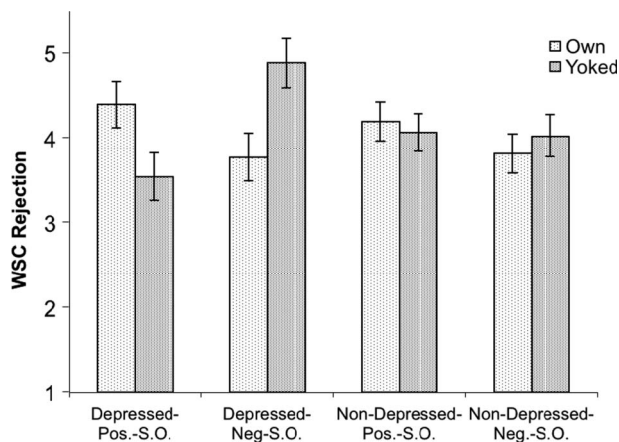
**FIGURE 2** Dysphoric mood after learning about the new person (POMS2), adjusting for mood at the start of experiment (POMS1). Error bars represent one standard error above and below the mean.

liked Significant Other), adjusting for judges' rating of rejection in the working self-concept at Session 1, and also for state self-esteem.<sup>6</sup> Missing data were estimated using multiple imputation (see Schafer, 1999).<sup>7</sup>

We predicted that dysphoric participants in the significant-other-resemblance condition (relative to the yoked-control condition) would come to freely list self-concept descriptors reflecting a sense of the self as rejected. That is, we predicted that for these participants in this condition, independent judges would have rated the listed self-concept features as conveying more perceived rejection. The analysis yielded a two-way interaction between significant-other resemblance and significant-other valence,  $F(1, 132) = 12.10$ ,  $p < .01$ , and the full three-way interaction with depression status, as predicted,  $F(1, 132) = 5.95$ ,  $p < .05$ , and as shown in Figure 3. In particular, our planned contrasts showed that dysphoric individuals described their self-concept in terms more indicative of perceived rejection when the loved significant other was cued (Adjusted  $M = 4.39$ ; 95%  $CI = 3.85-4.92$ ) than in the corresponding control condition (Adjusted  $M = 3.54$ ; 95%  $CI = 2.99-4.10$ ),  $t(132) = 2.39$ ,  $p < .05$ ,  $d = 0.87$ . This effect did not emerge when the new person resembled their disliked significant other, nor did it emerge among non-dysphoric participants ( $t < 1$ ). Indeed, a reversal of the effect occurred among dysphoric individuals when the new person resembled a yoked participant's disliked other; that is, dysphoric individuals showed more perceived rejection in the yoked-control condition (Adjusted  $M = 4.88$ ; 95%  $CI = 4.31-5.45$ ) than in the own-disliked-significant-other condition (Adjusted  $M = 3.77$ ; 95%  $CI = 3.21-4.33$ ),  $t(132) = 3.15$ ,  $p < .01$ ,  $d = 1.15$ .<sup>8</sup>

## Discussion

We made use of an analog experimental design to examine our dual hypotheses that exacerbated dysphoric mood and more perceived rejection in the working self-concept would be evoked among individuals with moderate (subclinical) symptoms of depression—based on an interpersonal context activating a mental representation



**FIGURE 3** Rejection in working self-concept features, adjusting for general self-concept (Session 1) and state self-esteem. Error bars represent one standard error above and below the mean.



of a loved significant other who was at times rejecting. In a social-cognitive transference paradigm, participants were implicitly cued (or not) with descriptors deriving from their own significant other while learning about a new person, with this significant other either one who was loved or disliked and who was also at times rejecting.

We predicted that the transference effect would emerge for both dysphoric and non-dysphoric participants, revealed in a more positive evaluation of the new person resembling their own loved versus disliked significant other, and, indeed, as in prior research on transference, just this effect occurred, regardless of depression status. The overall evaluation linked to the representation (loved or disliked) was applied to the new person when this person minimally resembled participants' own significant other (e.g., Andersen & Baum, 1994; Andersen et al., 1996), as in the process of schema-triggered affect (Fiske & Pavelchak, 1986), and this occurred in spite of the fact that both were rejecting. No such patterns emerged in a yoked-control condition. This measure is commonly used to show that activation of the significant-other representation occurred and that transference emerged (see Andersen & Chen, 2002, for a review). The significant-other representation was thus activated in the resemblance condition in this research.

More to the point, and as predicted, dysphoric individuals expecting to meet a new person who resembled their own loved but rejecting significant other (rather than a yoked participant's), showed increases in depressed mood and also listed self-concept qualities that independent judges indicated reflected more perceived rejection. As expected, no such effect emerged when the new person resembled a disliked significant other; nor when participants were non-dysphoric. For the disliked significant other, in fact, an unpredicted reversal in this pattern occurred for both measures, with more depressed mood and rejection in the working self-concept when the new person resembled the yoked person's disliked significant other (vs. the participant's own).

Our central dual hypotheses were thus supported, suggesting an affective vulnerability among depressed individuals to loved but rejecting significant others even when these individuals are not present. This is the first study of which we know to find shifts in self-reported mood and in self-views in an anticipated interpersonal encounter among dysphoric individuals as a result of activating a mental representation of a loved significant other who is also at times rejecting.

### *Interpersonal Relationships and Depression*

Taken together, these findings show that persistently dysphoric individuals may be particularly vulnerable emotionally to the activation of a loved but rejecting significant other (and not a disliked one). Remaining connected with loved significant others and disengaging emotionally to some extent from disliked significant others is something both dysphoric and non-dysphoric individuals are likely to do, and they should thus have more at stake with loved ones. When loved others are also somewhat rejecting, dysphoric (depressed) individuals may be particularly vulnerable to painful feelings of rejection and increases in depressed mood—if the loved-significant other is cued (vs. not). Given their problems with affect regulation, it stands to reason that dysphoric individuals would be especially reactive to such cues in terms of dejected affect and perceptions of rejection in the working self-concept. The evidence is consistent with the notion that dysphoric individuals are less adept at regulating negative internal states than are non-



dysphoric individuals and thus become dysregulated in this context. On the other hand, whether non-depressed individuals effectively regulate their own negative responses to the “insult” in this context or are simply not reactive to begin with remains for future research.

Either way, because both dysphoric individuals and those who were non-dysphoric showed the positive effect of liking the new person, i.e., schema-triggered evaluation based on resemblance to their own loved versus disliked significant other, the transference effect clearly occurred, and did so across depression groups. The significant-other representation was thus activated and used with the new person (i.e., transference occurred), as has repeatedly been shown (see Andersen & Berk, 1998, for a brief review), and our predictions were supported on this basis.

The effect cannot be accounted for by the simple notion that depressed individuals are especially reactive to negatively valenced primes (see Gotlib & Krasnoperova, 1998; Scher, Ingram, & Segal, 2005) because dysphoric individuals in this research were in fact more reactive to cues deriving from their positively valenced significant other rather than from their negatively valenced one. The effects arose not only for mood but also for shifts in self-views, and they did so in an anticipated interpersonal encounter with a target who resembled a loved significant other and who participants thus evaluated especially positively.

To better understand what was and was not cued in this research, it is worth emphasizing that although participants were instructed in Session 1 to describe significant others by whom they perceived having not been accepted (regardless of overall significant-other valence), they were asked not to use the term rejection or to refer explicitly to the rejecting qualities or behaviors. Hence, none of the descriptions presented as cues about the new person referred to him or her as rejecting. Moreover, regardless of whether the significant other was liked or loved, and regardless of whether he or she was from the individual’s own life or that of a yoked participant, the experiment presented participants with equal numbers of positive and negative cues, which tended to diminish how obvious the overall valence of the original significant other was in the cues presented.

Still, the overall valence of these cues (based on love or dislike of the significant other) can readily be discerned by outside observers (e.g., Andersen & Baum, 1994). It is thus not surprising that independent judges rated the cueing features derived from disliked significant others as reflecting an even more rejecting new person than did the cueing features derived from loved significant others, although both were generated by participants (in Session 1) as “rejecting,” regardless of depression group. Such a pattern should, if anything, work against our central hypotheses. The fact that the predicted mood and the self-concept effects for dysphoric participants emerged for the participant’s own loved but rejecting significant other (vs. a yoked participant’s), and not for the disliked and rejecting significant other, indicates that the effects cannot be explained by the new person resembling the disliked significant other seeming more rejecting.

There was also an unexpected finding worth noting. In the control condition, dysphoric individuals showed exacerbated depressed mood when anticipating an encounter with a mildly negative new person who did not resemble their own significant other (i.e., resembled a yoked participant’s significant other). This is consistent with the idea that dysphoric individuals may become disheartened when anticipating unpleasant interpersonal encounters with an unfamiliar person. Alternatively, previous research suggests that mildly-to-moderately depressed/dysphoric individuals tend to process information more thoroughly about unfamiliar

target persons (Edwards, Weary, von Hippel, & Jacobson, 2000). These individuals may have been more emotionally reactive to the negative target person who was especially unfamiliar (in the yoked-control condition) because they processed this person's features more carefully. By contrast, because these individuals may particularly value and want to sustain relationships with loved significant others, even if rejecting, cueing the representation of such others in a new interpersonal encounter may lead prior disappointments to be evoked, prompting affective lability and negative changes in self-views.

#### *Limitations and Future Research*

Some limitations of this research include its utilization of an undergraduate sample, making the clinical implications less clear than if participants had a definitive diagnosis of depression. To more closely approximate a clinical sample, however, we did assess symptoms of mild to moderate depression at three points in time (spanning a minimum of about five weeks) and included as depressed/dysphoric only those individuals with relatively stable scores across the three testing sessions.

The predicted effect for mood arose only when participants were anticipating an interaction with the new person and not after learning it would not occur. This finding reveals a limiting condition on the observed mood effect, i.e., the anticipatory context. Indeed, the predicted self-concept effect was assessed only while anticipating the interaction, again highlighting this potential limiting condition, although without direct examination of it. By contrast, the activation and use of the significant-other representation, i.e., the basic transference effect, arose both at the point of anticipating the interaction and afterward, and hence, no such limiting condition was observed.

On a different note, it might be argued that the effects found in the present study were due to the activation of general social categories (e.g., types of people who are loved/disliked, into which the significant others may fall), rather than of unique significant-other representations. While a no-social-category control was not included in this study, previous work has shown that significant-other representations are richer and more distinctive than are social categories (Andersen & Cole, 1990) and that, when cued in this paradigm, lead to more pronounced effects on memory than do social categories the individual tends to use (Andersen & Cole, 1990; Chen et al., 1999). This previous research, however, did not compare dysphoric and non-dysphoric individuals, and it is thus feasible that dysphoric individuals processed the triggering cues more categorically than did non-dysphoric individuals. Depressed individuals tend to over generalize (see, e.g., Williams et al., 2007). Addressing this matter, then, awaits future research.

It should be noted that although much research on significant-other activation (including this study) examines anticipated interpersonal encounters, cueing a significant-other representation has been found to influence a variety of interpersonal and intrapersonal responses, including actual behavior (Berk & Andersen, 2000, 2008). Future research using an actual interpersonal encounter would thus be valuable, especially to track the sequence of behaviors that emerge over time (e.g., including actual responses of a new person, who may well eventually reject the individual).

Indeed, interpersonal models of depression suggest that depressed persons continually seek reassurance and also solicit negative feedback from others that verifies their own self-concept (Joiner, Alfano, & Metalsky, 1993; see also Joiner,

2000). As a result, they have difficulty accepting expressions of reassurance and affirmation and, instead, tend to expect and even to elicit negative feedback. Sensitivity to rejection may also be associated with a tendency to behave in ways that ultimately lead to rejection (Downey, Freitas, Michaelis, & Khouri, 1998). The present findings contribute to these existing literatures by providing further evidence that relatively persistent (i.e., lasting for more than four weeks) mild to moderate depression is linked with being prone, in particular interpersonal contexts, to experience the self as especially rejected (see also, e.g., Davila et al., 1995) and to experience exacerbated dysphoric mood. Further research on subtle cues that lead to shifts in perceived interpersonal rejection among those with pre-existing persistent dysphoria would thus be valuable.

### *Concluding Comments*

This is the first research of which we are aware to examine experimentally how individuals with mild to moderate symptoms of depression respond when a significant other-representation is cued in the interpersonal context of transference, and to demonstrate transient shifts in dysphoric mood states and in the working self-concept (reflecting the self as rejected) among these individuals—based on activation of a loved but rejecting family member. Perhaps representations of loved but rejecting significant others have special impact on mood and the self-concept due to dysphoric individuals' continued emotional investment in these relationships. Given the special relevance of interpersonal relations in depression, examination of the effects of activating relational knowledge for depressed individuals is important. The findings point to one avenue through which past relationships may ultimately contribute to the maintenance of depression, and they also draw attention to the interplay of self and other in social-cognitive models of psychopathology.

### **Notes**

1. Note that the cutoff for moderate depression symptoms on the more updated version of the BDI, the BDI-II (Beck, Steer, & Brown, 1996)—not used in the present study—would be a 20 or above.
2. Participants randomly assigned to the own-significant-other-resemblance condition coincidentally had BDI scores in Session 1 that were significantly lower ( $M = 12.59$ ) than did participants assigned to the yoked-control condition ( $M = 15.30$ ),  $F(1, 122) = 9.25$ ,  $p < .01$ , though this had not been the case at pre-screening ( $M = 14.5$  vs.  $13.6$ ),  $F(1, 131) = 1.23$ ,  $p = .27$ . This own versus yoked difference in Session 1 was also larger among depressed participants than among those who were non-depressed ( $Diff = 4.61$  vs.  $0.81$ ), resemblance  $\times$  depression interaction,  $F(1, 122) = 4.55$ ,  $p < .05$ .
3. Two independent judges also rated how “rejecting” the cues presented about the new person were, overall, on a 0–7 Likert scale (with an inter-rater reliability of .77). Cues deriving from the negative (disliked) significant other were rated as more “rejecting” ( $M = 3.46$ ) than were those deriving from the positive (loved) significant other ( $M = 3.03$ ),  $F(1, 65) = 4.94$ ,  $p < .05$  (averaging across the two judges), even though both types of descriptions had an equal number of positive and negative descriptors (plus irrelevant distracters). However, no interaction emerged to suggest that these ratings differed as a function of whether the features were listed by depressed or non-depressed participants. Hence, our predicted effects cannot be accounted for by differences in the extent of apparent rejection in the cues to which participants were exposed.

4. Depressed participants scored higher, overall, on the POMS Depression-Dejection Scale ( $M=17.67$ ) than did non-depressed participants ( $M=3.09$ ),  $t(140)=8.81$ ,  $p < .01$ , as they did on sociotropy (but not autonomy) of the Sociotropy–Autonomy Scale ( $M=79.35$  vs.  $M=60.46$ ),  $t(140)=6.01$ ,  $p < .01$ , and on rejection sensitivity (Downey's scale;  $M=11.86$  vs.  $M=7.52$ ),  $t(137)=6.64$ ,  $p < .01$ , while also scoring lower at that time in state self-esteem ( $M=54.45$  vs.  $M=76.39$ ),  $t(133)=12.30$ ,  $p < .01$ .
5. All relevant statistically significant findings from the ANOVAs are reported for analyses of evaluation, mood, and working self-concept. Note, however, that for evaluation, there were significant main effects of time (with more positive evaluations at the first PAF administration than at the second), significant-other valence (with more positive evaluations when the target resembled a positive vs. negative significant other), and depression status (with more positive evaluations by non-dysphoric vs. dysphoric individuals),  $ps < .05$ . Each of these main effects averaged across all other conditions.
6. We adjusted for state self-esteem to show that these effects were not reducible to lower state self-esteem and to minimize any error variance associated with the fact that participants randomly assigned to our control condition happened to have somewhat higher BDI scores at the outset than did those assigned to the own-SO-resemblance condition. We did not adjust for BDI scores because they were used to pre-select participants and thus adjusted for state self-esteem, instead.
7. Five imputations were conducted (SPSS, version 19.0) using linear regressions with gender, BDI score at pre-screening, BDI score at Session 1, self-esteem, and rejection sensitivity. Missing values were imputed for working self-concept at Session 1 ( $n=4$ ) and Session 2 ( $n=4$ ), rejection sensitivity ( $n=3$ ), and self-esteem ( $n=7$ ).
8. We also examined independent judges' ratings of the how positive or negative participants' working self-concept descriptions were (ratings made with high inter-judge reliability, as noted) in the same  $2 \times 2 \times 2$  ANCOVA (Depression Status  $\times$  Significant-Other Resemblance  $\times$  Loved or Disliked Significant Other), adjusting for Session 1 rating and state self-esteem. This yielded a statistically significant main effect of Depression Status,  $F(1, 132)=4.18$ ,  $p < .05$ , with dysphoric individuals showing a less positive working self-concept valence than non-dysphoric individuals (adjusted  $M=-0.10$  vs.  $0.28$ ). It also yielded a two-way interaction between own-other resemblance and how positive or negative the significant-other was,  $F(1, 132)=4.43$ ,  $p < .05$ , although no post hoc comparisons were statistically significant. However, there was no statistically significant three-way interaction with Depression Status ( $F < 1$ ), suggesting no special negative self-evaluation in the self-concepts of dysphoric individuals (beyond perceived rejection) when their loved but rejecting significant other was cued.

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